IN THE CLAIMS

Please amend claims 2, 6, 9, and 13-17 as indicated below.

1. (Canceled)

2. (Currently Amended) A method comprising:

establishing a plurality of transmission time slots, each time slot corresponding to one of a plurality of optical transmitters coupled to a head end via an interleaving device ~~a passive optical network (PON) splitter~~;

forming a bit interleaved optical data stream at the interleaving device ~~PON splitter~~ based on a plurality of optical bits transmitted by the plurality of optical transmitters during a respective time slot associated with each of the optical transmitters, each of the optical transmitters transmitting only one optical bit to the interleaving device within each respective time slot; and

transmitting the bit interleaved optical data stream from the interleaving device ~~PON splitter~~ to the head end over an optical network.

3. (Original) The method of claim 2 further comprising:

enabling each of the plurality of optical transmitters to transmit an optical bit during its corresponding time slot.

4. (Original) The method of claim 3 further comprising:

adding an additional optical transmitter to the optical network.

5. (Original) The method of claim 2 wherein at least one of the plurality of optical transmitters is a vertical cavity surface emitting laser.

6. (Currently Amended) A network comprising:

a head end;

~~a passive optical network (PON) splitter~~ an interleaving device coupled to the head end; and

a plurality of transmitters coupled to the head end via the interleaving device ~~PON splitter splitter~~, each of the plurality of transmitters are enabled to transmit an optical bit during an established time slot corresponding to said each transmitter to the interleaving device ~~PON splitter~~ to create a bit interleaved optical data stream, wherein the bit interleaved optical data stream is transmitted from the interleaving device ~~PON splitter~~ to the head end, and wherein each transmitter transmits only one optical bit to the interleaving device within each respective time slot.

7. (Original) The network defined in Claim 6 wherein at least one of the plurality of transmitters comprises a vertical cavity surface emitting laser.

8. (Canceled)

9. (Currently Amended) An apparatus comprising:

means for establishing a plurality of transmission time slots, each time slot corresponding to one of a plurality of optical transmitters coupled to a head end via an interleaving device ~~a passive optical network (PON) splitter~~;

means for forming a bit interleaved optical stream at the interleaving device ~~PON splitter~~ based on a plurality of optical bits transmitted by the plurality of optical transmitters during a respective time slot associated with each of the optical transmitters, each of the optical transmitters transmitting only one optical bit to the interleaving device within each respective time slot; and

means for transmitting a bit interleaved optical data stream from the interleaving device ~~PON splitter~~ to the head end over an optical network.

10. (Original) The apparatus of claim 9 further comprising:

means for enabling each optical transmitter to transmit an optical bit during its corresponding time slot.

11. (Original) The apparatus of claim 10 further comprising:

means for adding an additional optical transmitter to the optical network.

12. (Original) The apparatus of claim 11, wherein at least one optical transmitter is a vertical cavity surface emitting laser.

13. (Currently Amended) A computer readable medium, which, when executed by a processing system, enables the system to perform:

establishing a plurality of transmission time slots, each time slot corresponding to one of a plurality of optical transmitters coupled to a head end via an interleaving device ~~a passive optical network (PON) splitter~~;

forming a bit interleaved optical stream at the interleaving device ~~PON splitter~~ based on a plurality of optical bits transmitted by the plurality of optical transmitters during a respective time slot associated with each of the optical transmitters, each of the optical transmitters transmitting only one optical bit to the interleaving device within each respective time slot; and

transmitting the bit interleaved optical data stream from the interleaving device ~~PON splitter~~ to the head end over an optical network.

14. (Currently Amended) The method of claim 2, wherein each of the plurality of optical transmitters is assigned ~~an up to~~ a 10 nanosecond time slot, and wherein each bit of the bit interleaved optical data stream is transmitted via ~~an up to~~ a 2.5 ns pulse over the optical network.

15. (Currently Amended) The method of claim 2, further comprising increasing transmitting power for each bit of the bit interleaved optical data stream to allow a peak of the transmitting power exceeding a predetermined threshold that would cause human eye damage, while maintaining an average transmitting power of the bit interleaved optical data stream below [[a]] the predetermined threshold that would cause a human eye damage.

16. (Currently Amended) The network of claim 6, wherein each of the plurality of optical transmitters is assigned ~~an up to~~ a 10 nanosecond time slot, and wherein each bit of the bit

interleaved optical data stream is transmitted via ~~an up to~~ a 2.5 ns pulse over the optical network.

17. (Currently Amended) The network of claim 6, wherein each bit of the bit interleaved optical data stream is transmitted via a pulse having a duty cycle such that, while carrying a ~~relative high~~ transmitting power having a peak value higher than a predetermined threshold that would cause human eye damage, an average transmitting power of the bit interleaved optical data stream is maintained below [[a]] the predetermined threshold that would cause [[a]] human eye damage.